2015 RATE DESIGN APPLICATION (RDA)

TRANSMISSION EXTENSION POLICY – WORKSHOP #1

FOR GENERATIONS

18 November, 2014

Agenda

Approximate Time	Item	Presenter(s)
9 :00 – 10:15	Welcome Background & Legal context Bonbright Criteria Overview of Tariff Supplement No.6 (TS 6)	Anne Wilson Gord Doyle Sam Jones/Frank Lin
10:15-10:30	Break	
10:30 – 12:00	Sources Informing TS 6 Review Contribution Options Security Options	Justin Miedema Sam Jones / Frank Lin
12:00 – 1:00 PM	Break for lunch	
1:00 pm – 2:45	150 MVA Threshold Options Transition Rule Options Other Issues	Frank Lin Sam Jones
2:45 – 3:00	Closing and Next Steps	Anne Wilson

Background and Legal Context

Presenter

Gordon Doyle

Background and Legal Context

- TS 6 governs new customer payment towards new transmission required to serve them
- TS 6 became effective 21 January 1991 pursuant to British Columbia Utilities Commission (BCUC) Order G-4-91
- As discussed at the 8 May 2014 Introductory Workshop, BC Hydro’s view is that TS 6 is in scope for the 2015 RDA

Background and Legal Context

- However, section 3 of Direction No. 7 raises jurisdictional issues regarding TS 6
  - Subsection 3(2): BCUC “must ensure the rates for [BC Hydro] transmission service customers are subject to … the terms and conditions found in Supplements 5 and 6 of [BC Hydro’s] tariff”
  - The BCUC cannot unilaterally change TS 6
  - This jurisdictional issue was recognized in the BCUC’s 2009 report concerning BC Hydro’s Transmission service rate program

Background and Legal Context

- BC Hydro proposes that the BCUC's review of TS 6 take place under section 5 of the *Utilities Commission Act*
- The BCUC would make recommendations to the B.C. Government concerning TS 6, with the B.C. Government as the decision-maker
- BC Hydro is seeking further feedback on whether TS 6 can be part of a later 2015 RDA 'module' (not part of the anticipated late June 2015 RDA filing)

Bonbright Criteria

Presenter

Gordon Doyle

Application of Bonbright Criteria to Extension Policy

Used to assess TS 6 and options

<u>Fairness</u>

- Fair apportionment of costs among customers
- Avoidance of undue discrimination

<u>Efficiency</u>

- Price signals that encourage efficient use and discourage inefficient use

<u>Practical</u>

- Practical & cost effective to implement

<u>Customer acceptance</u>

- Customer understanding and acceptance
- Freedom from controversies as to proper interpretation

<u>Revenue / rate impacts</u>

- Recovery of the revenue requirement
- Revenue stability
- Rate & bill stability

Application of Bonbright Criteria to Extension Policy

- Regulators in other jurisdictions have focused on fairness and efficiency Bonbright criteria
- Fairness – balance interests of existing customers in maintaining postage stamp rate levels with interests of new customers in receiving system access at a predictable and reasonable cost
- Efficiency - BCUC in 2012 Dawson Creek/Chetwynd Area Transmission Project (DCAT) Certificate of Public Convenience and Necessity (CPCN) decision: “new customers should be provided with price signals that encourage efficient economic decisions”
    - E.g., new customers request the most economical connection facilities and/or take into account the existing or planned transmission system when considering alternate locations for service
- Also important is Rate & Bill Stability – if there is a future change to TS 6, should consider grandfathering new customers in the interconnection queue

Overview of TS 6

Presenter

Sam Jones

Frank Lin

Contribution Policy
Illustrative Transmission Connection

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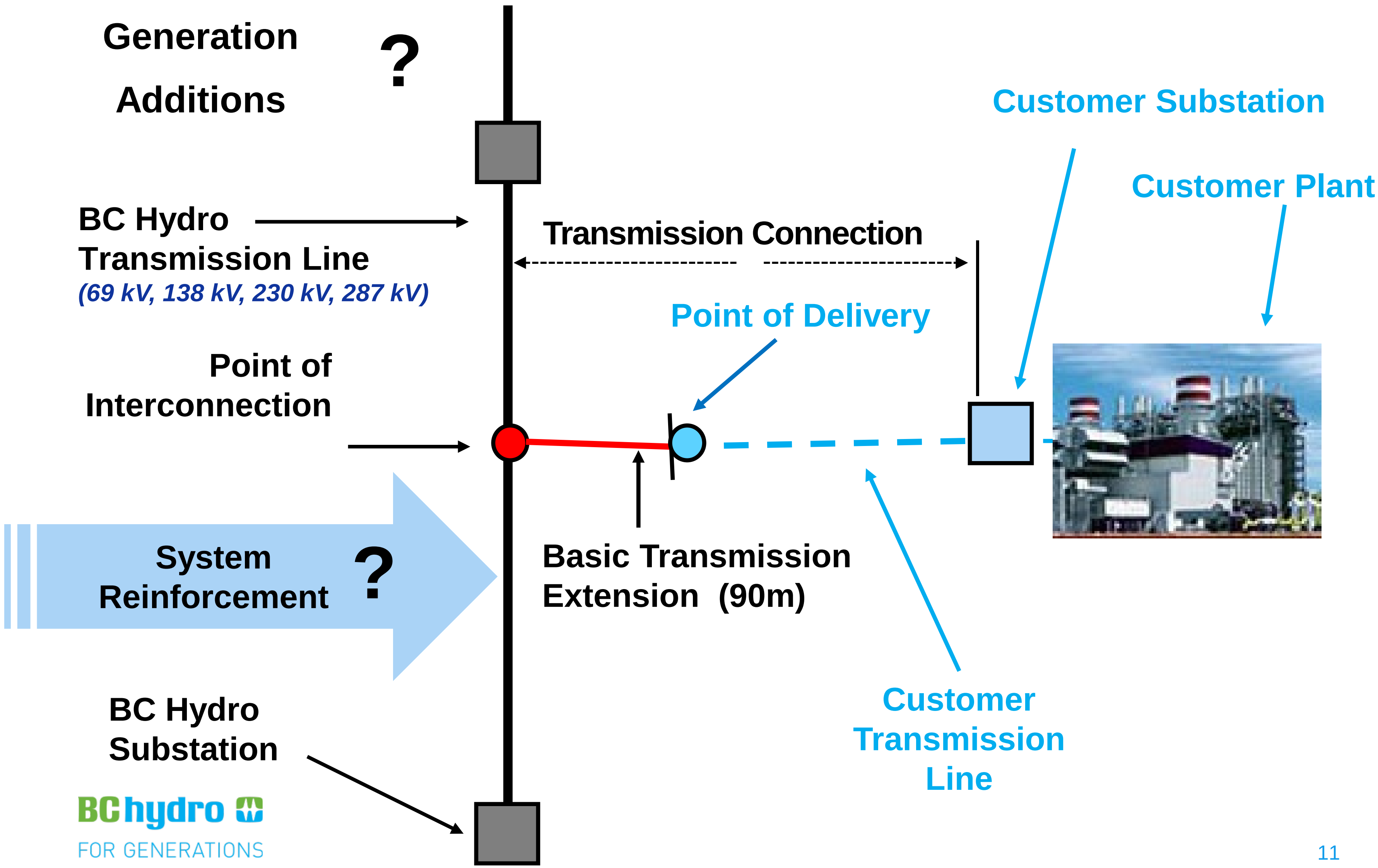

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TS 6 – Overview

Under TS 6, the connection between customer's facility and the BC Hydro grid has three parts:

- Customer undertakes the design, securing of government agency approval, land acquisition and construction of **transmission line connecting customer facility to BC Hydro's system (Customer Transmission Line)** where "reasonable, practical and economic"; if it is not "reasonable, practical and economic" for the customer, BC Hydro undertakes these activities – new customer is responsible for 100% of costs

- BC Hydro makes a **Basic Transmission Extension (BTE), in which it modifies its existing facilities to allow the customer transmission line to connect to the grid** – customer is responsible for 100% of costs

TS 6 – Overview

BC Hydro identifies upgrades to its existing transmission system (known as System Reinforcement (SR)) required to supply electricity to point of BTE – SR costs are shared according to terms and conditions set out in TS 6

- BC Hydro share of incremental costs arising from new customer is referred to as **contribution** in this presentation
- BC Hydro contribution is the lower of either: (a) actual SR costs; or (b) first year of anticipated electricity sales revenue x 7.4
- New customer typically provides letter of credit (LoC) (or equivalent form of security) in regard to BCH contribution, which is drawn down annually as revenues are realized. Although contribution calculation is based on about 7.4 years, customer is given 12 years for revenues to be realized before any outstanding security would be called on
- SR costs do not include incremental generation costs or 500 kV transmission lines unless the load exceeds 150 megavolt amperes (MV.A)

TS 6 – BC Hydro's Contribution

- BC Hydro's contribution towards SR is based on total revenue (demand and energy) expected over about a 7.4 year period

- Detailed formula is:

$$I = \frac{(R-E)}{0.135} + B + D$$

I = BC Hydro maximum contribution towards cost of SR

R = incremental revenue in first year of normal operation

E = incremental Operating & Maintenance (O&M) expenses during first year of normal operation

B = other benefits to BC Hydro

D = ½ of annual depreciation associated with total cost of SR

System Reinforcements

- TS 6 defines SR as additions and alterations to existing BC Hydro facilities, required to supply the electricity to a “Transmission Connection” (Customer’s Transmission Line and BTE)

- SR includes the following types of upgrades:
  - Thermal upgrades of transmission lines to increase operating temperature and clearances (includes raising poles, re-contouring terrain and re-tensioning of conductor)
  - Re-conductoring of transmission lines
  - Addition of voltage support equipment
  - Replacement of transformers and associated facilities at a source substation
  - Addition of protection and control and communication facilities at BC Hydro facilities
  - **Addition of a new transmission line between two points on existing BC Hydro transmission system and any associated substation equipment to terminate the new line**

System Reinforcements

- For most interconnections, SRs are planned and designed to meet the new load requirements e.g., voltage support equipment is specified for size of the new load

- In cases where new lines or transformer replacements/additions are required, the reinforcements can add more capacity than needed to supply the new load due to the fact these upgrades add capacity in larger blocks

Extensions

- Extensions are not a defined term in TS 6
- TS 6 refers to **“Transmission Connection”** which includes BTE and the Customer’s Transmission Line
- The issue has been raised as to whether there are circumstances when a Customer’s Transmission Line should/could be considered a SR and a utility contribution applied to the costs

System Reinforcement vs Extension

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Extensions to single customer

- If an extension supplies a single customer then this should be treated as a customer connection

- If the line is transferred to BC Hydro and additional customers connect then pioneer rights would apply where new customers would contribute to the cost (depreciated) to the pioneer customer

System Reinforcement vs Extension

Extensions to clustered loads (more than one load)

When there is a reasonable expectation (based on customer enquiries/request, load forecasts and/or other industry indicators) that there would be additional customers that would connect to an extension within "X" year period, then:

1. BC Hydro would build the common transmission line and would treat this common line extension as an extension to the BC Hydro system, and using the pioneer principle, split the costs amongst the loads on a pro-rated basis upfront (load/total loads or load/line capacity). This would be a direct customer capital payment; or

2. BC Hydro would build the common transmission line and would treat this common line extension as a SR, and would apply the utility contribution to these costs and seek security from each customer on a pro-rated basis (load/total loads or load/line capacity)

System Reinforcement vs Extension

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Extensions to clustered loads (continued)

Where BC Hydro would like to have the common line extension built to a higher capacity than required for the initial load(s), BC Hydro could prorate the costs based on:

1. The initial customer(s) contributing based on the avoided cost of the line required to serve its load. The incremental cost would be allocated to future customers based on their load over the incremental capacity from the large capacity line; or

2. All customers would be allocated costs based on their load over the total capacity of the line built

Sources Informing Review of TS 6

Presenter

Justin Miedema

Sources Informing Review of TS 6

- BCUC in the DCAT CPCN proceeding stated there are a number of issues concerning TS 6 that should be reviewed
- The Industrial Electricity Policy Review (IEPR) Task Force October 2013 Final Report notes that TS 6 is over 20 years old and recommended that TS 6 be reviewed in a BCUC public process
- Other BC Hydro tariffs - Northwest Transmission Line (NTL) tariff; Distribution extension policy
- Jurisdictional review
  - Each utility faces a unique set of circumstances including geography, industry structure, supply costs and economic growth
  - Different utilities use different terminology

NTL Tariff

- The NTL Tariff (TS 37) was approved in 2013 pursuant to BCUC Order G-52-13
- This tariff is supplemental to TS 6, with customer's incremental payment towards NTL costs based on a pro-rated share of the line from industrial customers and generators that connect to the line:

NTL Supplemental Charge = (Demand/NTL Capacity) x Actual Utility Cost

Contribution Policy – Distribution

- Distribution General Service contribution amount is a calculation based on Net Present Value (NPV) of a Distribution capital-related revenue stream

- The General Service contribution amount is:

  $200 per KW of estimated billing demand

- When calculating what a customer must pay for an extension, BC Hydro multiplies customer's estimated demand by the maximum contribution amount and then makes adjustments for:

  - Asset renewal credits ("depreciation allowance")
  - Shared or dedicated salvage credits
  - Telus contributions credits

Jurisdictional Review

- BC Hydro surveyed other utilities to determine how they treat their large transmission service customers

- Starting point was Energy + Environmental Economics, Inc.'s (E3) 2013 survey[1] of 12 jurisdictions submitted as part of the IEPR Task Force process

  - E3 reviewed the large load interconnections policies of Alberta Electric System Operator (AESO); Bonneville Power Administration (BPA); California; ERCOT (Texas); Hydro One (Ontario); Hydro Quebec; Manitoba Hydro; New Brunswick Power; Nova Scotia Power; PJM (a regional transmission organization (RTO) in the eastern U.S.); SaskPower; U.S. Midwest ISO (a regional RTO in the U.S. Midwest)

- BC Hydro updated E3's jurisdictional assessment and focused on: AESO, BPA, Hydro One, Hydro Quebec, Manitoba Hydro and SaskPower

[1] See Appendix A, http://www.empr.gov.bc.ca/EPD/Documents/IEPR%20Submission-BC%20Hydro%202.pdf

Jurisdictional Review

- BC Hydro chose to focus on jurisdictions with: similar industries served by the utility (e.g., gas and/or mining); hydroelectric system-based; long transmission system distances; and/or to cover differing approaches

  - BC Hydro does not favour the extremes of assessing costs solely to the new customers or not imposing any direct costs on the new customer

- The jurisdictional survey work focused on determining underlying policy drivers, and cost recovery mechanisms for connection facilities, extensions and system or network upgrades

- ‘Extensions/Connections’ are analogous to ‘Customer Transmission Line’ and ‘Basic Transmission Extension’ described in slide 12
- ‘Network Upgrade’ is analogous to ‘System Reinforcement’ described in slide 13

Extensions/Connections

- Customer pay extension and connection costs net of an investment by AESO:
  - Investment levels based on a formula that relates past connection costs and loads
  - Dataset includes 215 past connections including greenfield and upgrade projects from the late 1990s to present
  - 60% of total extension/connection costs are covered by contributions from AESO

Tier	Tier (a)	Tier (b)	Tier (c)	Tier (d)	Tier (e)
Investment	$52,000	$35,350	$13,050	$7,900	$4,250
Unit	/year	/MW/year	/MW/year	/MW/year	/MW/year

Current Investment function:

First 7.5 MW	Next 9.5 MW	Next 23 MW	All add't MW

Network Upgrades

- System related costs are borne by all ratepayers and there is no cost to the connecting customer. AESO makes a case by case determination on which costs are system vs. participant related
- Generally, upgrades that are in AESO’s long term planning are considered system related; however, customers may be charged for advancement costs
- AESO’s tariff lists a number of criteria for the types of costs that can be deemed system or participant related

SaskPower

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Extensions/Connections

- Customers pay extension and connection costs associated with connecting to the nearest transmission line based on fixed $/km construction costs

- If actual construction costs exceed the fixed $/km construction costs, SaskPower pays for the additional costs. SaskPower estimated its $/km charges at $1 million per km

- Utility builds and owns all line extensions and connections

Network Upgrades

- Customers are not charged for network upgrades

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Manitoba Hydro

Extensions/Connections

- Customers pay extension and connection costs because since 23 June 2005, no utility contribution has been made in relation to facilities required to serve new loads exceeding 30 kilovolts (kV) or loads in excess of 5 MW
  - This action was taken to mitigate rate impacts on existing customers.
- Utility builds and owns all line extensions and connections

Network Upgrades

- Customers are not charged for network upgrades

Extensions/Connections

- Customer payment for extensions governed by a revenue test and Ontario Energy Board's (OEB) Transmission System Code
- Test examines NPV of customer revenue against extension expenses
- Length of evaluation period varies according to proponent risk:
  - 5 years for high-risk connections
  - 10 years for medium-high-risk connections
  - 15 years for medium-low-risk connections
  - 25 years for low-risk connections

Only customers with high credit ratings are classified as low or medium-low risk

Network Upgrades

- Historically, customers have not been charged for network upgrades, but utility can request approval to charge for these from OEB

Extensions/Connections

- Hydro Quebec applies a revenue test and contributes $378 per kilowatt (kW) to determine customer's payment for extension and connection-related costs

- New loads greater than 50 MW must receive Quebec Government approval before connecting to the Hydro Quebec system
  - Prior to 2008, threshold was 175 MW but this was reduced to 50 MW as a result of the 2006 Energy Strategy to minimize rate impacts associated with "granting large blocks of electricity" to specific customers

Network Upgrades

- Hydro Quebec does not charge customers for Network Upgrades

BONNEVILLE POWER

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- BPA has a number of direct load customers including data centers, lumber mills, mines and aluminum smelters

- Any costs directly attributable to a customer's connection are born 100% by the connecting customer. This can include Network Upgrades that have no benefits to other customers on the BPA system

- If there are mutual benefits from Network Upgrades, connecting customer will pay full cost upfront and then be given "transmission service credits" in the form of reduced transmission use charges that they can use to offset transmission costs

- If new line will serve two or more large loads, line will be considered Network Upgrades and will be charged to the rate base

Summary	BC Hydro	AESO	SaskPower
Who pays for Extension/ Connection?	Customer	Customer net of utility contribution	Customer, but capped at $/km construction cost
Who pays for Network Upgrade?	In practice the utility, but customers could potentially be required to contribute	Connection costs deemed “system related” are paid for by utility	Utility
Methodology to determine utility contribution	Revenue test, including G, T and D revenue	Formula approach relating costs with customer capacity	N/A
Security	Posted prior to construction; Capped at maximum contribution as defined in TS 6; Refunded as revenues materialize (up to 12 years)	Security requirements increase as projects advance through proposal, application, and construction phases; Capped at AESO’s maximum investment level and refunded when customer reaches Commercial Operation Date (COD)	Security of 25%, 50%, or 100% for the extension/connection can be collected depending on project risk

Summary	Manitoba Hydro	Hydro One	Hydro Quebec
Who pays for Extension/ Connection?	Customer	Customer net of utility contribution	Customer net of utility contribution
Who pays for Network Upgrade?	Utility	Utility, but an application can be made to OEB to charge the customer	Utility
Methodology to determine utility contribution	N/A	NPV formula using different time periods depending on project risk	Currently $378/kW
Security	Security can be held for up to 5 years at discretion of the utility	Amount of the deposit is proportional to credit worthiness; Refunded once customer connects to Hydro One	Both the utility contribution and network upgrade costs are secured; Refunded once customer has been connected for 12 months

Summary

- Utilities surveyed use different approaches - there is no industry standard method
- Extensions/Connections (i.e. Transmission Connection, i.e. Customer Transmission Line plus BTE) - Most utilities provide a contribution to customer extensions/connections (e.g., AESO, SaskPower, Hydro One, Hydro Quebec) while BC Hydro requires customers to pay 100% of these costs
- Network Upgrades (SR) - Most utilities do not charge for network upgrades as there is recognition that such upgrades often benefit both new and existing customers
    - Where there is a charge for network upgrades, revenue tests are often applied to determine proportion of the cost borne by connecting customer and by the utility (e.g., Hydro One, BC Hydro)
- Security is commonly collected to mitigate against stranded investment risk; typically held by utility until customer reaches COD or shortly thereafter

Utility Contribution Options

Presenter

Sam Jones

Utility Contribution Option #1 Generation and Transmission Demand Revenue Model

Demand Revenue model - based on NPV of forecasted Rate Schedule (RS) 1823 demand revenue stream (which includes generations and transmission demand costs), adjusted for life expectancy of customer's facility

RS 1823 Demand Revenue Model
BC Hydro Maximum Contribution ($/kVA)

	Using the F16 - F20 rates announced in the 10 year plan
Estimated life of customer's facility	RS 1823 demand revenue
5 Year	$371
10 Year	$656
15 Year	$860
20 Year	$1,005
25 Year	$1,108
30 Year	$1,194

Issues

- No cost of service basis

BC Hydro view

- BC Hydro proposes no further analysis required

Utility Contribution Option #2 Transmission Cost of Service Model (capital, O&M, taxes)

Transmission Cost of Service model – based on NPV of forecasted transmission costs (capital, O&M & taxes), adjusted for life expectancy of customer's facility

Transmission Cost of Service Model (capital, O&M, taxes)
BC Hydro Maximum Contribution ($ / kVA)

	Using the F16 - F20 rates announced in the 10 year plan
Estimated life of customer's facility	Based on Transmission-related (capital, O&M, taxes) costs as identified in F13 cost of service study (COSS)
5 Year	$275
10 Year	$486
15 Year	$626
20 Year	$744
25 Year	$820
30 Year	$883

BC Hydro view

- BC Hydro proposes to carry forward for further analysis

Utility Contribution Option #3 Transmission Cost of Service Model (capital) - closest to BC Hydro Distribution extension policy

Transmission Cost of Service model – based on NPV of forecasted Transmission capital-related costs (excludes O&M, taxes), adjusted for life expectancy of customer’s facility

Transmission Cost of Service Model (capital)
BC Hydro Maximum Contribution ($ / kVA)

	Using the F16 - F20 rates announced in the 10 year plan
Estimated life of customer’s facility	Based on Transmission-related capital costs for as identified in F13 COSS
5 Year	$157
10 Year	$277
15 Year	$363
20 Year	$424
25 Year	$467
30 Year	$504

BC Hydro view

- BC Hydro proposes to carry forward for further analysis

Contribution Policy Offset Options #1, #2 and #3 – Application on historical and inflight projects

Using historical project cost data, BC Hydro compared Option #1, Option #2 and Option #3 to determine impact on customer projects

	Rates as of 1 April 2014	Using the F16 - F20 rates announced in the 10 year plan		
	TS 6	Option #1 Demand revenue	Option #2 Transmission revenue - (capital, O&M, taxes)	Option #3 Transmission revenue - (capital only)
Number of customers where utility contribution covers 100% of SR costs	49	45	42	36
Number of customers where utility contribution does not cover 100% of SR costs	0	4	7	13
% of customers where utility contribution does not cover 100% of SR costs	0%	8%	14%	27%

Notes:

- Does not include any consideration of BC Hydro benefit
- BC Hydro contribution based on life of projects

Utility Contribution Options #1, #2 and #3 – Application on historical and inflight projects

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Using historical project cost data, BC Hydro compared Option #1, Option #2 and Option #3 to determine aggregated impact of contribution options

		Total Contribution - Rates as of 1 April 2014	Total Contribution - Using the F16 - F20 rates announced in the 10 year plan		
	SR Costs	TS 6	Option #1 Demand revenue model	Option #2 Transmission revenue (capital, O&M, taxes)	Option #3 Transmission revenue model (capital only)
Totals ($ millions)	$727	$4,814	$1,852	$1,370	$781
Amount of Unused contribution ($ millions)		$4,087	$1,125	$643	$54

* Does not include any consideration of BC Hydro benefit

Notes:

- BC Hydro contribution based on life of projects
- Total new load 1,785 MW

Utility Contribution Option #4
Fixed duration

Modification of Options #1, #2 and #3 by setting NPV revenue stream timeframe to 25 years, which is ½ the life of a transmission asset

Transmission Cost of Service Model
BC Hydro Maximum Contribution ($ / kVA)

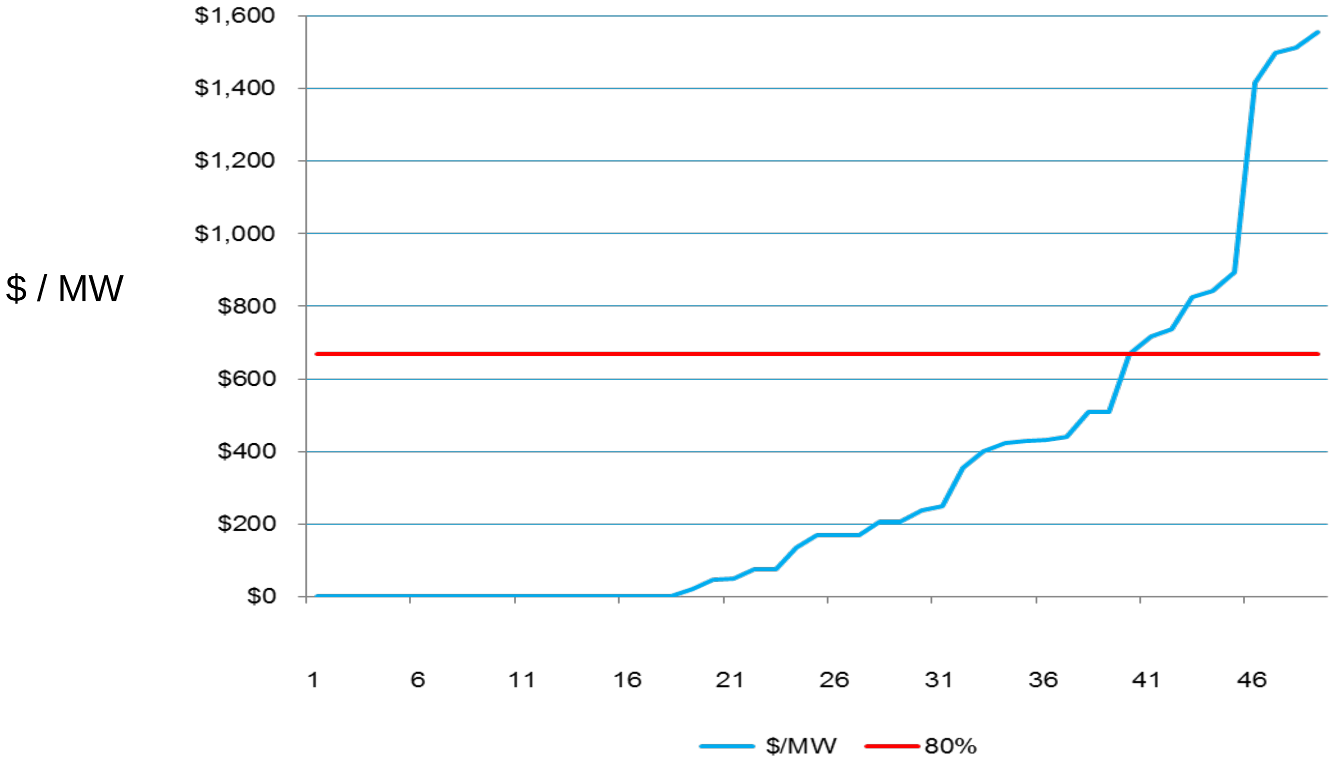
	Using the F16 - F20 rates announced in the 10 year plan		
Revenue Stream Timeframe	Option #1 - 1823 Demand revenue model	Option #2 - Transmission revenue model (capital, O&M, taxes)	Option #3 - Transmission revenue model (capital only)
25 year	1,108	820	467
50 year	1,318	975	557

Issues
- Timeframe does not impact Options #2 and #3; simplifies these options by not having to estimate expected life of customer facility

BC Hydro view
- BC Hydro proposes to carry forward for further analysis

Utility Contribution Option #5
Cost Multiplier (AESO consideration)

Utility contribution should be set so that amount will cover SR costs for most customers - 80/20 rule (20% of new customers make a payment)



BC Hydro view:

- This is more of check on results than a stand-alone option
- Carry forward as check on other option results?

Utility Contribution option #6 Forecast New Loads/Multiplier (AESO consideration)

Develop contribution based on forecast of new loads and reinforcements, and apply a cost multiplier

Issues

- Difficult to determine with any accuracy future loads that have not made enquiries, and even more difficult to predict reinforcement costs as these are site specific and dependent on who else connects or are in the queue

- Hard to balance risk between customer and BC Hydro

- Possible cross-subsidization

BC Hydro view

- Given the issues, BC Hydro proposes that no further analysis is required

Utility Contribution Option #7
Hydro One

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Apply offset to BTE and extension (SR covered by utility)

Issues

- Does not fairly apportion costs of sole use facilities
- Possible cross-subsidization
- Upward rate impact

BC Hydro view

- Given the issues, BC Hydro proposes that no further analysis is required

Utility Contribution Option #8
SaskPower

Apply a fixed fee towards BTE and extension

Issues

- Difficult to establish costs as regional constraints and geography greatly affect interconnection costs
- Existing ratepayers bear risk of any cost incurred above the fixed fee and customer over contributes if costs are less than fixed fee
- Possible cross subsidization

BC Hydro view

- Given the issues, BC Hydro proposes that no further analysis is required

Utility Contribution Option #9
Hydro Quebec

Fixed offset ($/MW) for sole use and network upgrades

Issues

- Does not fairly apportion costs of sole use facilities
- Possible cross-subsidization
- Upward rate impact

BC Hydro view

- Given the issues, BC Hydro proposes that no further analysis is required

Utility Contribution Option #10
Manitoba Hydro

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Apply 100% of BTE and extension to customer and utility covers SR

- Utility may require security during construction period to ensure customer connects; Security is released once customer project reaches COD

Issues:

- Higher risk to existing ratepayer as no direct link between SR investment and revenue
- Possible cross subsidization and rate impact

BC Hydro view

- Carry forward for further analysis

Security Options

Presenter

Frank Lin

Existing Requirement

- Customer must provide security for full amount of BC Hydro contribution, in a form which has prior approval of BC Hydro which may include:
  - Irrevocable LoC;
  - Contract bond;
  - Guarantee by a corporation other than the customer;
  - Bank term deposit, to be deposited in trust for BC Hydro;
  - Negotiable bearer bond, that is government guaranteed at face value; or
  - Prepayment on account

- Over past decade, 18 customers have provided security. In that time, BC Hydro has never had to draw on the security

- Issues
  - Should security be required? For what amount?
  - When should security be released?

Amount of Security Options

Options	Pros	Cons
Existing approach: Security for full amount of contribution	Minimizes risk to existing ratepayers	Costs to industry. Possible barrier to customer project development
No security	Reduced administration and costs for industry	Risk of stranded assets
Security for construction period only	Addresses highest risk period	Risk of stranded assets after construction period
Security tied to proponent risk	Requires security only from riskiest counterparties	Possible barrier to customer project development

Release of Security Options

- Options under consideration for release of security:
  - After construction is complete?
  - After a fixed period, e.g., 5 years?
  - Based on an assessment of revenue recovered (similar to Distribution extension security)?

150 MVA Threshold Options

Presenter

Frank Lin

150 MVA Threshold - Background

- Under TS 6, SR to be funded by customer does not include additions or alterations to generation plant and associated transmission, or transmission lines at 500 kV and over, unless the new or incremental loads exceed 150 MV.A

- The threshold was established to mitigate against large rate impacts
  - Bulk generation costs are the most significant costs (versus bulk transmission)

- IEPR Task Force found that the 150 MV.A threshold was set based on the size cost of adding a new gas-fired generating facility to BC Hydro's resource stack

150 MVA Threshold - Background

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- Application of the 150 MV.A threshold only considered by the BCUC in one instance with the Port Alberni Aluminum complaint in 2002
- IEPR Task Force recommended a review of the 150 MV.A threshold and questioned the need for a threshold if the contribution policy was updated
- Only one other jurisdiction has a threshold – Hydro Quebec (50 MW)
- Ontario has provision whereby utility can go to regulator to request transmission costs be assigned to new customer

150 MVA Threshold Considerations

- How to deal with staged projects and/or multiple sites that might trigger the 150 MV.A threshold
- How to deal with a mismatch in the life of customer plant and the life of a new generation built or purchase
- Timing of assessment of generation requirements (e.g., in surplus when originally assessed-project delayed 2 years and now in deficit)
- Potential inconsistency with the Heritage Contract – new customers should be able to benefit from low cost Heritage resources

150 MVA Threshold Options

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1. Status Quo
    - Pros:
        - In case of very large load, protects existing ratepayers
        - Single threshold number is simpler to administer
    - Cons:
        - Limits customer project development?
        - Arbitrary - Difficult to justify why a hypothetical load of 149 MV.A would receive access to Heritage resources while a 150 MV.A load would pay full costs

- Variation on Option 1 is to revise application of existing threshold:
    - Bulk generation and bulk transmission costs?
    - Bulk transmission costs only?
    - Bulk generation costs only?
    - Only incremental amount above threshold?

150 MVA Threshold Options

2. Develop new threshold
    - Establishing a threshold
        - If load has a >XX% impact on rates
        - If load has is >XX% of installed generation capacity
        - Only incremental amount above XX threshold

3. No Threshold with Safety Valve (Ontario)
    - For exceptional cases where a new load would cause a significant rate impact, BC Hydro to have option to go to the BCUC for determination if and how generation and/or bulk system costs should be assigned to the new customer

4. No threshold

Transition Rule Options

Presenter

Frank Lin

Transition Rules

- If TS 6 is changed, there is a need to consider transition rules – this is consistent with application of Bonbright rate & bill stability criterion
- Customers are making final investment decisions (FID) based on existing TS 6 several years in advance of proceeding with their projects
- To the extent that there are TS 6 changes, this may impact overall economics of customer project, and in some cases whether they take electric service for load

Transition rules options

At what point should a customer be grandfathered under existing TS 6?

- System Impact Study (SIS) initiated - scope and costs are not identified until study is competed; customer commitment is minimal
- Facilities Study initiated - scope and first cut estimate identified; customer commitment is a deposit with customer starting to make decisions based on SIS
- Facilities Agreement executed – project plan completed; customer committed to implementation

- Other considerations:
- Should in-service date be considered?
- Should customer FID date be considered as FID may not align with Facilities Agreement execution?
- Should permit approvals (environmental, etc.) dates be considered?
- Other?

Transition rules options

BC Hydro's strawman transition rule for grandfathering, for stakeholder comment:

- Prior to the effective date of new TS 6, customers who have entered into a Facilities Study Agreement and can demonstrate to BC Hydro's satisfaction that their projects are likely to come into service within 24 months of the effective date have the option to continue under old TS 6. Customers who have not met both conditions on the effective date must proceed under new TS 6

Rationale:

- A timeframe for the transition is required to limit the time in which two tariffs are maintained and managed
- The Facilities Study Agreement is the appropriate position for apply grandfathering as this is the first point in the connection process after which the customer has been provided scope, cost, and schedule information (SIS report) which they can use in their business cases

Other Issues

Presenter

Sam Jones

Line Transfer

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- Under TS 6, customer has option to transfer customer's transmission line to BC Hydro:
  - Line must be built to BC Hydro standards (engineering, First Nations consultation, Right-of-Way, environmental requirements, etc.)
  - Customer must declare intent to transfer prior to designing the line
  - In practice, line must be operated for minimum 12 months prior to transfer to ensure all transfer issues can be identified and resolved
  - The line is transferred to BC Hydro for $10

Line Transfer

- Issue
  - BC Hydro cannot require or decline a line transfer under TS 6
    - BC Hydro concerns are:
      - There are instances where due to geography constraints that only one line can be accommodated which could limit ability to serve future customers
      - Desire to limit the environmental impact of providing multiple lines into an area
      - Removes the requirement for third party connections and request for exemptions to ensure the customer is not regulated as a public utility
      - Cannot decline a line that has no ability to serve other customers or will put unreasonable costs on BC Hydro
- Options
  - Option #1 - Leave the line transfer as customer's option only
  - Option #2 - Make the line transfer at either BC Hydro's or customer's option

Queue Management

- BC Hydro circulated a draft Queue Management Business Practice document, and is seeking comments as part of 45 day written comment period following posting of summary notes for this workshop

- BC Hydro manages a load interconnection queue for the following purposes:
  - Provide a non-discriminatory and transparent process
  - To determine order for initiating load interconnection studies
  - To set the base case for load interconnection studies and determine alternative scenarios to study
  - To determine subsequent cost allocation for facilities that are necessary to accommodate customer requests

Queue Management

BC hydro FOR GENERATIONS

- Current queue management practice follows these principles:
  - First-come first-served
  - Staged approach with deadlines
  - Flexibility to make efforts to meet each customer’s requested ISD while being fair to all the customers

- Queue does not guarantee capacity or energy
  - Customer must meet all obligations to remain in the queue and proceeds through all stages of interconnection process

Queue Management Issues

- How to minimize the impacts to other customers when customer request changes
- How to help more likely & earlier customer ISD projects to proceed while being fair to earlier queue customers
- How to facilitate cluster studies in a capacity constrained area

Queue Management Options

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- Tightening of existing process (staged approach with “soft” milestones)
- Staged approach with “hard” milestones
- Fast-track process
- Open call process

Next steps

TASKS	Date
45 day written comment period starting with posting of workshop notes to RDA website	December 2014 – January 2015
BC Hydro consideration memo, together with BC Hydro's position regarding filing Transmission Extension Policy as later RDA module II	March 2015
Continue to seek feed back from industry groups over the next several months as options are developed	December 2014 – Spring 2015
Update analysis of options based on feedback	December 2014 – Spring 2015
Develop interconnection scenarios to test leading options to be presented at Transmission Extension Policy Workshop #2	March 2015
Transmission Extension Policy Workshop #2	Spring 2015 – to be confirmed

THANK YOU

SEND COMMENTS TO:

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